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VACUUM CONCRETE

SPEED and ECONOMY for the CONTRACTOR

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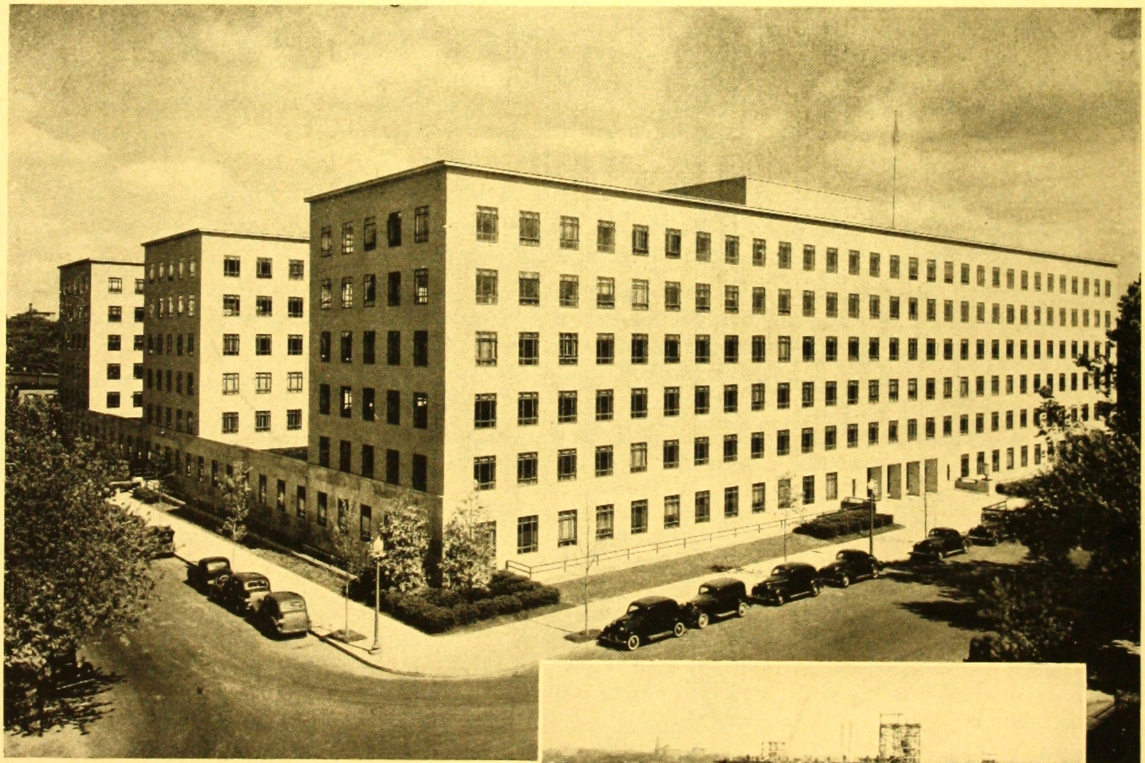

CENSUS BUILDING, *Washington, D. C. McCloskey & Co., Philadelphia, Pa., Contractors.*

600,000 sq. ft. of 10" flat slab construction completed in six weeks. McCloskey & Co. have since used VACUUM CONCRETE *process for six additional projects in less than one year, totaling 5,000,000 sq. ft.*

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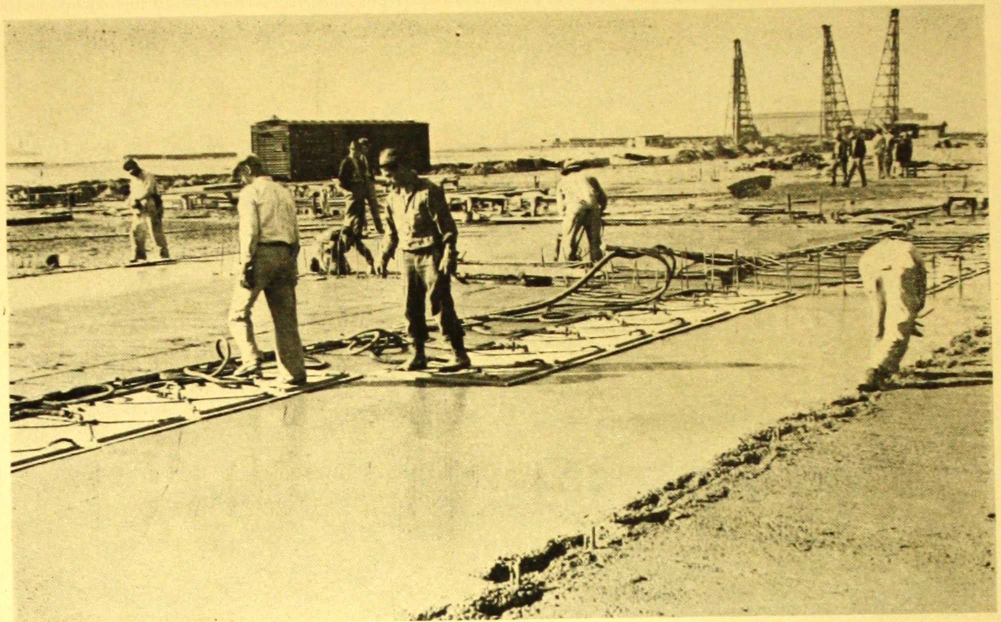

Fig. 1—The Vacuum Concrete *story in one picture. Note slushy consistency of concrete where man at right is walking. Behind the* Vacuum *mats cement finishers are already troweling the processed concrete.*

Seven Vacuum Concrete jobs for one contractor in fourteen months—five million square feet of Vacuum-processed slab—that's something for builders to think about!

On the two smallest jobs Vacuum Concrete was specified. On the other five the contractor, McCloskey & Co., of Philadelphia, Pa., used Vacuum Concrete because of its outstanding speed and economy.

For three successive winters Geo. A. Fuller Co., one of the oldest building construction organizations in the country, used Vacuum Concrete for the direct benefits they gained.

For the general contractor who does his own concrete work, as well as the concrete specialist, Vacuum Concrete has a real message. Do you want to speed up stripping?—reduce your formwork?—cut your finishing costs?—lower the cost of winter work?—maintain midsummer speed all winter?

Then Vacuum Concrete is your answer!

The Vacuum Concrete Process is a simple, practical method of removing the excess mixing water from concrete after it has been placed in the forms. Cement finishers start troweling thirty minutes after the concrete is placed; overtime is minimized or eliminated; concrete strengths are increased 50 per cent; forms can be stripped in three days, even in midwinter, with proper supervision.

Although Vacuum Concrete yields high early and ultimate strengths, it also offers a whole roster of other important advantages which are exclusively its own. Taken together, they can point to but one conclusion: Use Vacuum Concrete for your next large project!

ADVANTAGES

The advantages of high-early-strength concrete are well known:

The year around, forms may be stripped earlier. In winter, quick strength enables the concrete work to maintain summer speeds. Extra sets of forms are saved; heating period is shortened; less equipment is required for enclosures and heat; fire hazards are lessened.

All of these advantages Vacuum Concrete offers with standard Portland cement. (This is not to minimize the usefulness of high-early-strength cement. When high-early is used, Vacuum-processing will still further increase the strength, and confer the special benefits noted hereafter.) To the well-established benefits of high-early-strength concrete, the Vacuum Concrete process adds the following *extra dividends* which are all its own:

SIMPLICITY: Only one kind of cement to handle and store; no hand-loading of special cement at batching plants; no chance for mistakes.

FINISHING: Because a Vacuum-processed floor is largely independent of drying conditions—sun, temperature, wind, humidity, etc., the finishing crew always works at maximum effectiveness. No time lost waiting for "wet spots" to dry up; no "drier" to dust on; no heavy overtime charges. Finishing costs are low on a Vacuum Concrete job.

Overtime: Finishers start troweling on a well-organized job ten to fifteen minutes after screeding be-

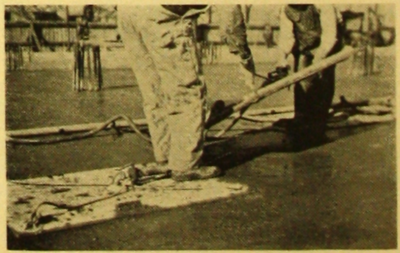

Fig. 2—Suction mats are easily handled by two men. Mats are handled without stepping in concrete.

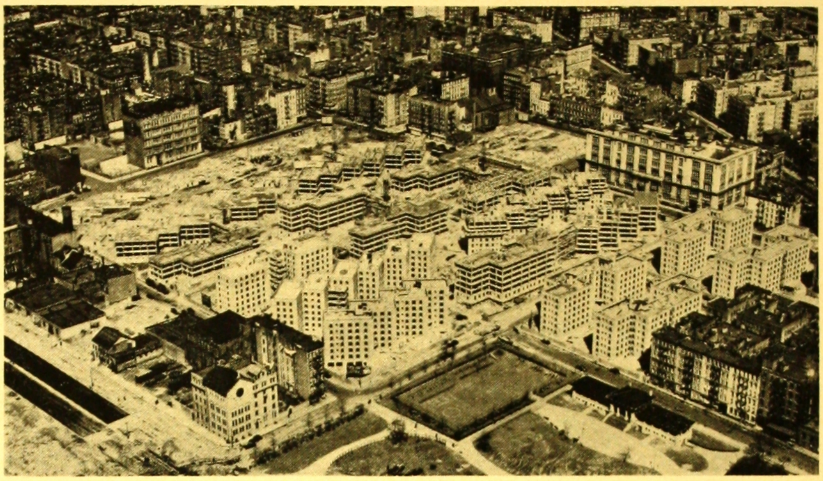

Fig. 4—Vladeck Housing Projects, *New York City. Geo. A. Fuller Co., New York City, Contractors. Second of three successive winter contracts with this builder, aggregating millions of square feet.*

gins—thirty to forty minutes after the first concrete is placed, even in coldest weather! Floating and first steel troweling are completed within an hour after concreting is finished. Where floors are to be covered with asphalt tile, linoleum, etc., and one pass with the steel trowel is sufficient, finishers can be off the floor all winter without overtime. On high-grade finishes, where several trowelings are required, from four to ten hours may be cut from the usual cold-weather overtime.

Monolithic Finish: The surface of a Vacuum-processed slab is right for troweling, without the application of additional fines. By omitting the usual "dust-on" of cement and sand, a harder, better-wearing surface is obtained with less tendency to dust.[1]

Topping Mortars: Where a separate topping mortar is specified, to be placed integral with the structural slab, Vacuum-processing the slab will permit topping to be placed earlier. On winter work, finisher time may be materially reduced by Vacuum-processing the topping as well. Economy without sacrifice of quality may be obtained by omitting topping mortar altogether and applying a troweled finish to the surface of the structural slab.[2]

Tent Protection: A high tent or cover over winter-poured slabs is usually unnecessary where Vacuum Concrete is employed, and represents a substantial saving on every slab concreted in cold weather. Finishing is done immediately behind the suction mats on concrete which is still hot because it is less than an hour old. Second troweling, where required, can usually be done before the concrete has lost its heat enough to require covering. A low cover supported on the column bars provides ample protection; in milder weather plank laid on building paper and covered with canvas have provided sufficient insulation. It is a wise rule, however, in winter concreting to use more protection than is necessary, rather than too little.

Larger Pours: Size of pour is often governed by necessity for avoiding excessive finisher overtime, particularly on cold-weather work. With Vacuum Concrete, larger pours are entirely feasible, since finisher overtime is definitely limited.

Two Pours the Same Day: On multi-building projects, such as housing and institutional groups, etc., speed schedules can often be stepped up from one pour to two or more per day, depending on how the work can be organized.

Instead of having to make pours simultaneously, to avoid heavy overtime for finishers on an afternoon pour, pours can be made in sequence, as is regularly being done on housing projects. Where Vacuum Concrete is used, only one concrete crew, one crew of finishers, one set of foremen, one hoisting engineer or crane and operator, etc., are required instead of two.

More Days Worked: Much lost time in cold weather is due to the snow squalls which start during the night and continue until mid-morning. To avoid the overtime which ordinarily follows a late start, concreting is postponed and a valuable working day lost.

Vacuum Concrete radically changes this picture. On Red Hook (N. Y.) housing project the contractor's superintendent stated in mid-February that the job was then seventeen days ahead of schedule due to the use of Vacuum Concrete. On this job, concreting started at 8 A. M., regardless of

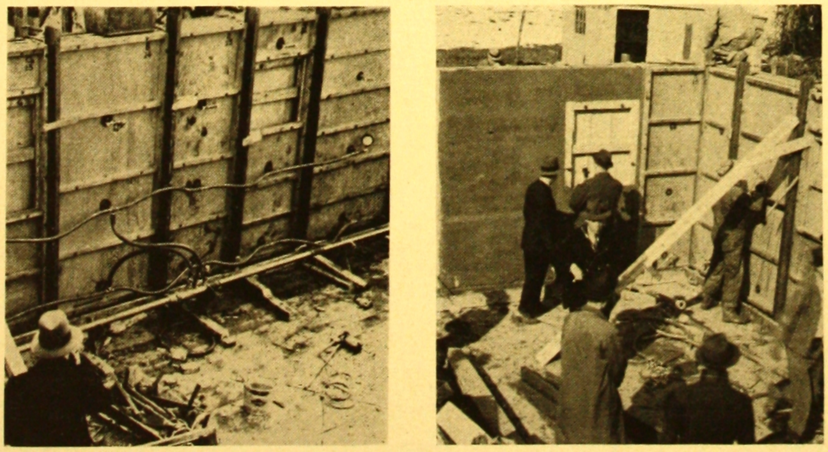

Fig. 3—Wall Construction. (Left) Vacuum Concrete *forms in place. Note absence of walers and through-bolting;* Vacuum*-processing reduces liquid pressure and makes lighter forms possible.* (Right) *Forms removed one hour after last concrete was placed. Wall is 9 feet high.*

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[1] Standard practice on U. S. Housing Authority projects and approved in their suggested form of specification.

[2] Used by U. S. Navy Department for four storehouses at the Fleet Supply Base, Oakland, Calif.

snow, if the weather forecast indicated clearing. No tents were erected and any slight damage to the Vacuum-hardened surface was troweled out after the snow ceased at 10 or 11 A. M.

On the other hand, if the forecast was unsettled, the men were told to wait, and if the snow stopped before noon, concreting started immediately. The overtime incurred on late starts was negligible, and a working day was salvaged which otherwise would have been lost.

POINTING: Every contractor is familiar with the pitted, pock-marked appearance of concrete poured into tight forms of metal or plywood. Where plaster is to be omitted, and the underside of the slab simply painted, perfect surfaces are of the utmost importance, if costly pointing is to be avoided.

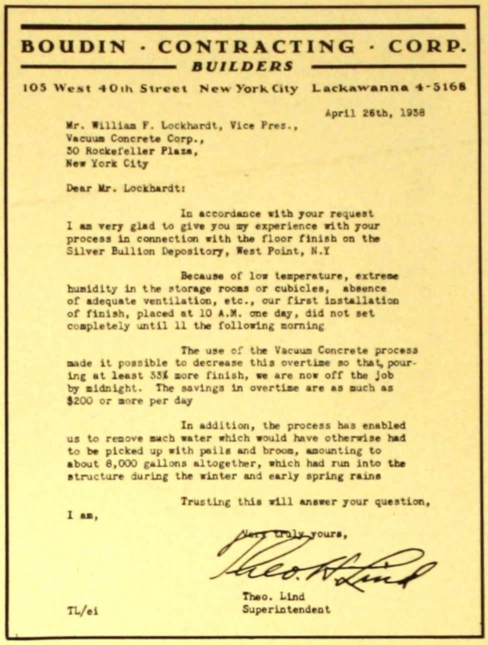
By Vacuum-processing the concrete, entrapped air as well as water is removed, bubbles disappear, and smooth, clean ceilings are obtained.

SUMMER WORK: Vacuum Concrete is emphatically not just a cold-weather aid. Many of the advantages of the process are independent of the season, and are just as valuable in summer as in winter.

There need be no fear that the removal of excess water will make it impossible for the finishers to trowel the concrete properly.

To understand this, it is merely necessary to distinguish between ordinary concrete, which becomes too hard to trowel when the setting action of the cement is nearly completed, and Vacuum-processed concrete, which is hard because the water which made it plastic has been removed. On a Vacuum Concrete floor, the finishers are working on concrete that is less than an hour old—far in advance of the time when the setting action takes place.

Numerous hot-weather projects and work in the tropics have proved both the feasibility and the desirability of Vacuum Concrete for summer use.



BOUDIN · CONTRACTING · CORP.
BUILDERS
105 West 40th Street New York City Lackawanna 4-5168

April 26th, 1938

Mr. William F. Lockhardt, Vice Pres.,
Vacuum Concrete Corp.,
30 Rockefeller Plaza,
New York City

Dear Mr. Lockhardt:

In accordance with your request I am very glad to give you my experience with your process in connection with the floor finish on the Silver Bullion Depository, West Point, N.Y

Because of low temperature, extreme humidity in the storage rooms or cubicles, absence of adequate ventilation, etc., our first installation of finish, placed at 10 A.M. one day, did not set completely until 11 the following morning

The use of the Vacuum Concrete process made it possible to decrease this overtime so that, pouring at least 33% more finish, we are now off the job by midnight. The savings in overtime are as much as $200 or more per day

In addition, the process has enabled us to remove much water which would have otherwise had to be picked up with pails and broom, amounting to about 8,000 gallons altogether, which had run into the structure during the winter and early spring rains

Trusting this will answer your question,

I am,

Very truly yours,

Theo. H. Lind

Theo. Lind
Superintendent

TL/ei

SIMPLICITY: The simplicity of the Vacuum Concrete Process is the first comment of every contractor who visits a job where the process is being used. Developed by Karl P. Billner, the process is eminently practical and does not interfere with normal concreting procedure in any way. Process and equipment are both fully covered by U. S. and foreign patents.

METHOD OF OPERATION

How does the process work? How is a Vacuum Concrete job organized? How much labor does it take to operate it? These pertinent questions can be answered out of the successful experience of some of the country's leading contractors.

The concreting operation itself is in no wise changed by the use of the Vacuum process.

A gasoline powered vacuum pump is spotted at some convenient point in or adjacent to the structure. From the pump a main suction line of reinforced 2″ vacuum hose is run to the forms, and connected, via one of several "T"s, to a light tubular manifold.

As soon as enough concrete has been placed across the end of the pour to permit the finishers to start "pulling up," the 3′ x 4′ suction mats are laid side by side on top of the freshly darbied concrete, to form a continuous band 4′ wide across the end of the pour. As each mat is placed, it is connected by a 1″ vacuum hose to its own outlet on the manifold, this connection remaining unbroken all day. Vacuum suction is applied or cut off, as required, by a valve on the back of each mat.

Three to five minutes processing will render the average six-inch slab of wet-mix concrete so hard that a man can stand on it without appreciable imprint. Cement finishers can start floating and troweling on the average structural floor slab within ten to fifteen minutes after the concrete has been screeded off!

Suction is applied to each mat as it is placed. Speed of operation is usually so adjusted that by the time the last mat has been placed it is time to shut off the first mat. Handled by ropes on the back, each mat in turn is quickly moved ahead 4′ (the length of the mat) until the entire line is advanced 4 feet. This cycle is regularly repeated all day.

Two men with one battery of mats can process fifteen thousand square feet of slab per day, even if the footage is divided between two buildings, as long as the floors are poured consecutively.

The equipment is not sold, but is furnished on a rental basis, which takes into account the area to be processed, the amount of equipment required, and the period for which the equipment will be on the job.

Equipment is operated by the contractor, who thus retains full control over the speed of his work. Vacuum Concrete, Inc. furnishes, without extra cost, an experienced Supervisor who trains the contractor's men in the simple technique of Vacuum operation, and remains on the job full time to ensure the proper operation of the process.

VACUUM CONCRETE, Inc.

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